

CLAIMS

5 1. A two piece unitary piston being adapter for use with an engine, said two piece unitary piston comprising:

10 a head member being made of a material having a preestablished material strength, having a crown portion to which is connected a ring band portion defining a bottom surface and having a support portion defining a mating surface having a preestablished surface area;

15 a skirt member being made of a material having a preestablished material strength being substantially the same as the preestablished material strength of said head member, having a ring band support surface being aligned with the bottom surface and having a top surface being aligned with said mating surface;

20 said head member and said skirt member being joined forming said two piece unitary piston, said joining being at the interface of said bottom surface and said mating surface, and said ring band support surface and said top surface respectively; and

25 said joining being formed by an inertia welding process.

30 2. The two piece unitary piston of claim 1 wherein each of said head member and said skirt member are made of steel.

3. The two piece unitary piston of claim 2 wherein each of said head member and said skirt member are formed as a forging.

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4. The two piece unitary piston of claim 2 wherein said head member is formed as a forging and said skirt member is formed as a casting.

5 5. The two piece unitary piston of claim 2 wherein said head member is formed as a casting and said skirt member is formed as a forging.

6. The two piece unitary piston of claim 1
10 wherein said interface of said bottom surface and said ring band support surface being radially spaced from said interface of said mating surface and said top surface.

15 7. The two piece unitary piston of claim 6 wherein said bottom surface and said ring band support surface being axially spaced from said interface of said mating surface and said top surface.

20 8. The two piece unitary piston of claim 7 wherein said head member defining a combustion side and said interface of said mating surface and said top surface being closer thereto than said interface of said bottom surface and ring band support surface.

25 9. The two piece unitary piston of claim 1 further comprising a piston cooling gallery.

30 10. The two piece unitary piston of claim 9 wherein said piston cooling gallery includes a head ring cooling gallery being positioned within said head member and a skirt member cooling gallery being positioned within said skirt member.

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